REMARKS/ARGUMENTS

By the present amendment, claims 49, 51, 54 and 88-92 have been amended, claims 50, 53, and 66-86 have been canceled without prejudice and new claims 94-114 have been added. The new claims 94-114 are all dependent either directly or indirectly on claim 49. Claims 1-48 and 87-93 have been withdrawn from consideration. Re-examination of the claims is requested in view of the foregoing amendments and the following remarks.

Claim Objections

Claim 51 has been objected to because the term "stains" after "removing dirt" was inadvertently omitted. By the present amendment, claim 51 has been amended to correct this omission.

Claim rejections 35 U.S.C. § 102

Claims 49-52 and 60 have been rejected under 35 U.S.C. § 102(b) as being anticipated by the Kenkare et al. U.S. Patent 3,722,752 (Claims 49-52 and 60). This rejection is respectfully traversed.

Claim 49 has been amended to set forth that the first pressure chamber that contains the peroxide composition has an inner surface formed wholly from uncoated aluminum. Further, claim 49 calls for a mixture of a propellant and a peroxide composition in the first pressure chamber. The Kenkare et al. '752 reference does not disclose these limitations. Although Kenkare et al. '752 does disclose a propellant and a peroxide composition within a pressure chamber, the propellant is not mixed with a peroxide composition and the peroxide composition is contained within a collapsible pouch, typically made from a plastic sack (see example 1). The peroxide composition is mixed with a foaming composition that is packaged in the aerosol can but not until after the peroxide composition and the foaming composition are dispensed from the can and from the plastic sack. Therefore, claims 49-52 and 60 are not anticipated by the Kenkare et al. '752 reference.

Nor are these claims obvious over the Kenkare et al. '752 reference. Insofar as Applicants are aware, peroxide compositions have not been heretofore commercially packaged in an aerosol container other than perhaps in a plastic sack as disclosed by Kenkare et al. '752, perhaps because of the extremely corrosive nature of hydrogen peroxide and the resultant generation of higher pressures within the aerosol container. The Kenkare et al. '752 reference does not disclose a peroxide composition mixed with an aerosol propellant in the plastic sack. Further, it is generally believed that "uncoated aluminum is very susceptible to corrosion, and aluminum aerosol containers without an internal lining cannot be used with aerosol products." See enclosed article Tait, "Corrosion Behavior: Part 1," March 2006 Spray Technology and Marketing,[1] p49. It was therefore surprising that bare, uncoated aluminum containers were able to package an aerosol/peroxide composition without decomposition of the peroxide composition and without corrosion of the aluminum container. Therefore, it would not be obvious to package a peroxide composition with an aerosol propellant in an uncoated aluminum container in view of the Kenkare et al. '752 reference or any other references of record.

In view of the foregoing, claim 49 and the claims dependent therefrom patentably distinguish over the Kenkare et al. '752 reference.

Claims 53, 54, and 61 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kenkare et al. '752 in view of the Lauwers et al. U.S. Patent No. 6,021,926 (Lauwers et al. '926). This rejection is respectfully traversed.

The Lauwers et al. '926 reference discloses an aerosol container comprising a foaming detergent composition, including a propellant gas such as carbon dioxide, nitrous oxides and mixtures thereof. Further, Lauwers et al.'926 discloses that the container may be made from any material, "preferably aluminum, tin plate, plastics including polyethylene terephthalate, oriented polypropylene, polyethylene or polyamide and including mixtures, laminates and other combinations of these." Lauwers et al. further disclose that the metal can be made of tin, steel

---

1 Although the Tait reference in not a prior art reference due to its March 2006 publication date, it is a relevant reference as to the unobviousness of the claimed invention as of this date which is subsequent to the filing date of the present application. If the use of an uncoated aluminum container for aqueous aerosol containers is thought to unobvious at this time, it must have been unobvious to a person skilled in the art at the time that the application was filed.

plate or other metals such as aluminum. Preferably, the interior surface of the metal containers is laminated with a plastic material, is coated with a lacquer or with a varnish. The lacquer or varnish are said to protect the interior surface of the container from corrosion which "may lead to a weakening of the container and may also lead to a discoloration of the container's contents." The substance of the teaching of Lauwers et al.'926 is that in all cases the metal is coated with a lacquer or varnish or otherwise is laminated with a plastic material in order to prevent corrosion of the aerosol container. That was and is the standard for the industry. See Tait, *supra*. Although as Tait, *supra,* points out, it is possible to adjust the chemical composition in certain aerosol compositions to minimize corrosion, Tait, *supra*, further discloses that aluminum is generally thought to have poor corrosion resistance and thus requires a protective coating.

The alleged combination of Kenkare et al. '752 with Lauwers et al. '926 is traversed. There is no basis for making the alleged combination of references. Whereas the Kenkare et al. '752 reference relates to a self heating shaving composition (a cosmetic), the Lauwers et al. '926 reference relates to a cleaning composition. Further, whereas the Kenkare et al. '752 reference uses a collapsible plastic bag within an aerosol container to package a peroxide composition which mixes with a thiodiethanol compound to produce heat, the mixing takes place during dispensing to generate heat as the shaving composition foams. On the other hand, the laundry detergent has no heat generating compounds and has no separate compartments within the aerosol container. Further, there is no disclosure in the Lauwers et al. '926 reference of packaging a peroxide composition in the container.

It is therefore believed that the alleged combination of Kenkare et al. '752 and Lauwers et al. '926 is inappropriate. Therefore, claim 49 and the claims dependent therefrom are not obvious in view of the Kenkare et al. '752 and the Lauwers et al. '926 references.

However, even if the alleged combination of Kenkare et al. '752 with Lauwers et al. '926 could be made, however untenably, it still would not reach Applicants' claimed invention. At best, the alleged combination of references would result in the Kenkare et al. '752 aerosol container made out of those materials which are disclosed in the Lauwers et al. '926 reference, for example, at column 3 lines 26-44. In any case, the use of an uncoated aluminum can to

package the Kenkare et al. '752 composition would not be selected because of the general knowledge that uncoated aluminum that is used for aerosol cans has very poor corrosion resistance. This alleged combination of references would not reach the subject matter of claim 49 which calls for a peroxide composition which is made and contained by a pressure chamber formed wholly from uncoated aluminum. The alleged combination of Kenkare et al. '752 and Lauwers et al. '926 would still have a peroxide composition which is contained in a collapsible plastic bag that is wholly within the outer container which at best would be made of coated aluminum or coated steel. Further, the peroxide composition of the alleged combination would not be mixed within the collapsible plastic bag with an aerosol propellant. Thus, claim 49 and the claims dependent therefrom patently define over any alleged combination of Kenkare et al. '752 and Lauwers et al. '926 in calling for a first pressure chamber that contains a peroxide composition and has an inner surface formed wholly from uncoated aluminum and further in calling for a mixture of a propellant and a peroxide composition in the first pressure chamber.

Even, assuming for the sake of argument that the alleged combination of Kenkare et al.'752 in view of Lauwers et al.'926 could be made, however untenably, to meet the combination of a bare aluminum aerosol can with a peroxide composition and aerosol propellant, the claims would still not be obvious in view of this alleged combination. The alleged combination would be assumed to result in an aerosol container that is readily corroded by the peroxide composition. See Tait, *supra*. Applicants have found, quite surprisingly, that the peroxide composition does not corrode the bare aluminum container. It has been found that the inside of the aluminum container quickly forms a dark oxide layer that protects the can from corrosion, and that there is no measurable change in the pressure in the container over a long period of time. Further, it has been found that the peroxide composition the bare aluminum aerosol cans do not corrode over a period of time. After more than two years of commercial production of over 5 million cans of spray cleaner packages according to the invention of claim 49, there has not been a single can returned for corrosion problems. Laboratory tests have confirmed the lack of corrosion in the peroxide container. Thus, claims 49-52 and 60 are clearly patentable over any alleged combination of Kenkare et al. '752 in view of Lauwers et al. '926.

Claims 55, 56, 62, and 64 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Kenkare et al. '752 in view of Lauwers et al. '926 and further in view of the Hart U.S. Patent No. 3,970,584 (Hart et al. '584). This rejection is respectfully traversed.

The Kenkare et al. '752 and Lauwers et al. '926 patents have been discussed above. Applicants believe that the arguments as to the uncombinability of these references set forth above are applicable in this rejection as well as the previous rejection. Applicants further believe that the alleged combined teachings of Kenkare et al. '752 and Lauwers et al. '926 does not meet the limitations of claim 49 as amended for the reason set forth above. Namely, claim 49 and the claims dependent therefrom patently define over any alleged combination of Kenkare et al. '752 and Lauwers et al. '926 in calling for a first pressure chamber that contains the peroxide composition and has an inner surface formed wholly from uncoated aluminum and further that a mixture of a propellant and a peroxide composition is in the first pressure chamber.

The Hart et al. '584 patent is cited to disclose a dip tube made from polyethylene. Applicants acknowledge this teaching and acknowledge that polyethylene dip tubes are well known in the art. However, combining the disclosure of Hart et al.' 584 with the teachings of Kenkare et al. '752 and Lauwers et al. '926 does not meet the limitations of claim 49, from which claims 55 and 56 depend for the reason set forth above with respect to the rejection of claim 49 over the Kenkare et al. '752 reference either alone or in combination with the Lauwers et al. 926 reference. Therefore, it is believed that the alleged combination of Kenkare et al. '752 with Lauwers et al. '926 with Hart et al. '584 does not meet the limitations of claims 55 and 56. Claims 62 -64 have been canceled and the rejection of these claims is therefore moot.

Applicants further point out that claim 55 calls for the normally closed valve to be made of a thermoplastic material that is inert to the oxidizing composition. This feature does not appear to be disclosed in Hart et al. '584 patent.

Claims 58-59 and 65-66 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over the Kenkare et al. '752 reference in view of the Lauwers et al. '926 reference

as combined above further in view of the Schmitt U.S. Patent No. 3,866,800 (Schmitt '800). This rejection is respectfully traversed.

The alleged combination of Kenkare et al. ‘752 and Lauwers et al. ‘926 has been discussed above and that discussion is believed equally applicable here. The alleged combination of these two references is untenable and, even if made as alleged, would still not meet Applicants’ claimed invention in independent claim 49 for the reasons set forth above.

The Schmitt '800 reference discloses an unpressurized package containing self heating products. The unpressurized package has a valve construction which is made from a suitable plastic, such as a polyvinyl plastic or a vinyl acetate copolymer plastic. Ball valves and springs are said to be formed of metal, such as steel. The Examiner has interpreted this passage in Schmitt '800 at column 9 lines 57-62 as a disclosure of a stainless steel spring. Applicants do not believe that this assumption is warranted but admit that steel springs and ball valves have been used in aerosol dispensing valves.

Even if the alleged combination of Kenkare et al. '752, Lauwers et al. '926 and Schmitt '800 were to be made, however untenably, it still would not reach Applicants claimed invention. The steel spring of Schmitt '800 would be incorporated into the dispensing valve in the Kenkare et al. '752 aerosol container. This alleged combination would not meet claim 49, from which claims 58 and 59 depend. Namely, the alleged combination of Kenkare et al. '752, Lauwers et al. '926 and Schmitt '800 would not meet the limitations of claim 49 which call for a first pressure chamber that contains the peroxide composition and has an inner surface formed wholly from uncoated aluminum and further that a mixture of a propellant and a peroxide composition is in the first pressure chamber. Therefore, claims 58 and 59 patentably define over any alleged combination of Kenkare et al. '752, Lauwers et al. '926 and Schmitt '800. Claims 65 and 66 have been canceled and the rejection of these claims appears to be moot.

Claim 57 has been rejected as unpatentable over Kenkare et al. '752 in view of Lauwers et al. '926 as discussed above and further in view of the Miles U.S. Patent No. 3,722,753 (Miles '753). This rejection is respectfully traversed.

The alleged combination of Kenkare et al. '752 with the Lauwers et al. '926 has been discussed above and is believed to be equally applicable here. The alleged combination is untenable and, even if made as alleged, still does not reach Applicants invention of claim 49 for the reasons set forth above. Namely, claim 49 and the claims dependent therefrom patently define over any alleged combination of Kenkare et al. '752 and Lauwers et al. '926 in calling for a first pressure chamber that contains the peroxide composition and has an inner surface formed wholly from uncoated aluminum and further that a mixture of a propellant and a peroxide composition is in the first pressure chamber.

The Miles '753 reference relates to an aerosol container that has a sealing gasket 152 that is disposed between a tubular terminal 63 and a rolled edge 150. The sealing gasket 152 is said to be made of any resilient material such as rubber, nylon, polyethylene and the like. Contrary to the Examiner's representation, Miles '753 does not disclose on aerosol container wherein a valve is made of nylon.

Therefore, even if the alleged combination of Miles '753 with Kenkare et al. '752 and Lauwers et al. '926 were to be made, however untenably, it still would not reach claim 57 which depends from claim 49. Claim 57 distinguishes over the alleged combination of Kenkare et al. '752, Lauwers et al. '926 and Miles '753 in the same fashion as claim 49. The alleged combination does not disclose on aerosol container in which a peroxide composition is mixed with a propellant and is contained with a pressure chamber that has an inner surface formed wholly of uncoated aluminum. In addition, claim 57 calls for a normally closed valve formed of nylon. These concepts are not disclosed by the Examiner's alleged combination of references.

New claims 94-114 have been added to give Applicants more complete protection for their invention. All of these claims depend either directly or indirectly from claim 49 and are believed allowable therewith.

In view of the foregoing remarks and amendments, it is submitted that all of the claims are in condition for allowance. Early notification of allowability is respectfully requested.

Respectfully submitted,

LINDSAY M. ULMAN ET AL.

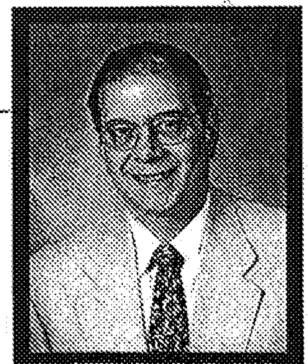
Dated: April 24, 2006

By: /John E McGarry/

John E. McGarry Reg. No. 22,360
MCGARRY BAIR PC
171 Monroe Avenue, NW, Suite 600
Grand Rapids, Michigan 49503
616-742-3500

G0221058.DOC

Corrosion behavior: Part 1



W. STEPHEN TAIT, PH.D.
Chief Science Officer
and Principal Consultant,
Pair O Docs Professionals, LLC

Aerosol containers can be made from two types of metal: 1) steel with or without a coating of tin, and 2) aluminum. In addition, aerosol valves can be made from aluminum or steel, while the internal valve springs and check balls are typically made from stainless steel. The corrosion resistance for each of these three metals is radically different. This month's *Corrosion Corner*, which focuses on aluminum, begins a three-part series that discusses the corrosion properties of the different metals used to fabricate aerosol containers and valves.

As a general rule, the corrosion resistance of a pure metal is typically higher than the corrosion resistances of the metal's corresponding alloys. An alloy is a mixture of metals and non-metals, such as carbon and silicon. Pure metals typically do not have the tensile strength needed for aerosol containers, so metal alloys are used to fabricate aerosol containers.

Corrosion Basics: Aluminum container metallurgy

Aluminum aerosol containers are typically fabricated from the 1000 series of aluminum alloys. For example, type 1070 aluminum (universal numbering system A91070) has a minimum concentration of 99.1% aluminum, and type 1050 aluminum (A91050) has a minimum concentration of 99.5% aluminum. The balance of the materials in type 1050 and type 1070 is a range of maximum concentrations below a fraction of 1% each for magnesium, copper, manganese, silicon, titanium, vanadium, zinc, and iron.

The corrosion resistance of an aluminum alloy is determined by the chemical composition of a formula. Let's review several chemistries and factors that determine the corrosion resistance of aluminum.

Aluminum and chlorinated hydrocarbons/ethanol

Aluminum has been observed to react violently with certain chlorinated hydrocarbons, such as chloroform. However, there are also chlorinated hydrocarbons, such as biocides and insecticides, that do not react violently with aluminum. Please remember that chlorinated hydrocarbons are not the same as inorganic chlorides, such as sodium chloride or potassium chloride, for example. Inorganic chlorides typically do not cause aluminum aerosol container corrosion.

Other ingredients in a particular formula could actually inhibit the reaction between chlorinated hydrocarbons and the aluminum container, thereby producing a formula that is not corrosive. Thus, corrosion testing is the only reliable way to determine if chlorinated hydrocarbons in a formula will cause or contribute to aluminum aerosol container corrosion.

Anhydrous ethanol can also be corrosive toward aluminum when there is absolutely no water in the alcohol. However, adding only a few ppm of water to the ethanol typically makes it non-corrosive toward aluminum.

Aluminum corrosion behavior as a function of formula pH

In certain situations, the corrosion rate of aluminum is very low when the solution pH is between approximately 4 and 7. Outside of this range, the corrosion rates can be extremely high when the pH is lower than approximately 4 and exceeds 7. This type of corrosion behavior is illustrated in Figure 1.

Please remember that the other ingredients in a formula could not only shift the range of pH that produces low corrosion, but could also change the shape of the pH-corrosion rate curve shown in Figure 1. In other words, Figure 1 cannot be used in all cases to predict the corrosivity of your formulas with aluminum containers.

Normally, the 1000 series of aluminum alloys have very poor corrosion resistance with water, aqueous aerosol formulas, and formulas with water as a minor component. Indeed, you will see that aluminum is more electrochemically active than steel or tin if you review a table of electromotive force potentials in a physical chemistry textbook. Consequently, uncoated aluminum is very susceptible to corrosion, and aluminum aerosol containers without an internal lining cannot be used with aerosol products.

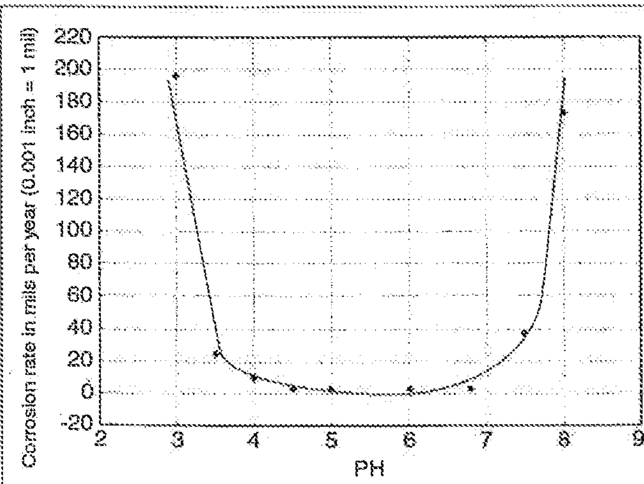


Figure 1. Aluminum corrodes rapidly when the solution pH is approximately below 4 and exceeds 7. Please remember that a pH-corrosion rate curve for your individual aerosol formulas could be significantly different from the curve shown in Figure 1.

Coated aluminum corrosion behavior

Coating research has demonstrated that organic coatings usually bond more strongly to aluminum than to steel and tin. In other words, a coating on aluminum will bond more strongly than the same coating will bond to steel or tinplated steel. Stronger coating-metal bonding is expected to provide better corrosion protection. However, this expectation is only true for certain types of aerosol formulas.

The only way to determine if aluminum containers are suitable for use with a given formula is, once again, to conduct corrosion tests. The October 2001 through December 2001, and February 2005 *Corrosion Corners* have discussions of the various aerosol container corrosion tests and recommended best practices. Issues of *Corrosion Corner* are contained on CDs that are available from *Spray Technology & Marketing Magazine*. Please contact them (973-331-9545) if you would like to add these to your company or personal library. SPRAY